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BRIEF ARTICLES

TAXONOMIC NOTES ON *EUTYPELLA VITIS*, *CRYPTOSPHAERIA POPULINA*, AND *DIATRYPE STIGMA*

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Cultures were started from fresh collections of *Eutypella vitis*, *Cryptosphaeria populina*, and *Diatrype stigma* using methods described previously (Glawe, **1983b**). Each fungus was cultured on Difco potato dextrose agar (PDA). *Cryptosphaeria populina* was cultured at 15 C with a day length of 10 h of fluorescent light, while the other fungi were cultured at alternating temperatures (15–20 C), with a 10-h day length. Living cultures were deposited with ATCC.

EUTYPELLA VITIS (Schw.) Cooke *emend.* D. A. Glawe FIGS. 1–14

Teleomorph. Stromata erumpent through bark, valsoid, margin circular, 0.4–1 mm diam. *Perithecia* monostichous, embedded in mixture of fungal and host tissue. Perithecial necks somewhat elongate, emerging through bark in groups, ostioles three- to four-sulcate. *Asci* clavate to spindle-shaped, long-stipitate, with refractive apical invagination and amyloid apical ring, apical wall slightly thickened, eight-spored, *p. sp.* (32–)40–46 × 6–8 μm. *Ascospores* allantoid, slightly to moderately curved, subolivaceous, with several oil droplets in each end, 9.6–12(–13.6) × 2–2.4 μm.

Anamorph in culture. Colonies after one month white, aerial mycelium rather thin, cottony, with numerous circular black areas; reverse pale yellow, black beneath dark areas. *Conidiomata* black, subconic, 0.8–2.5 mm diam, multiloculate, largely prosenchymatous, producing yellowish conidial masses in 3–4 wk. *Conidiogenous cells* cylindrical, tapering, arising from pseudoparenchyma or interwoven hyphae, proliferating percurrently or sympodially, rarely both ways, 12–21.6 × (0.8–)1.6–2.4 μm. *Conidia* hyaline, single-celled, slightly to moderately curved, with flattened bases, becoming guttulate, (10.4–)12.8–16 × (1.2–)1.6 μm.

SPECIMENS STUDIED: Glawe, D. A., no. 85-156 (specimen from which culture was started), ILLS, 10.V.1985, 506 S. Johnson, Urbana, Champaign Co., Illinois, on *Vitis labrusca* L. cv. Concord; Schweinitz, L. D. (as "Sphaeria vitis Schw."), PH, NEOTYPE, date not given, Salem, Bethlehem, Pennsylvania, host not given.

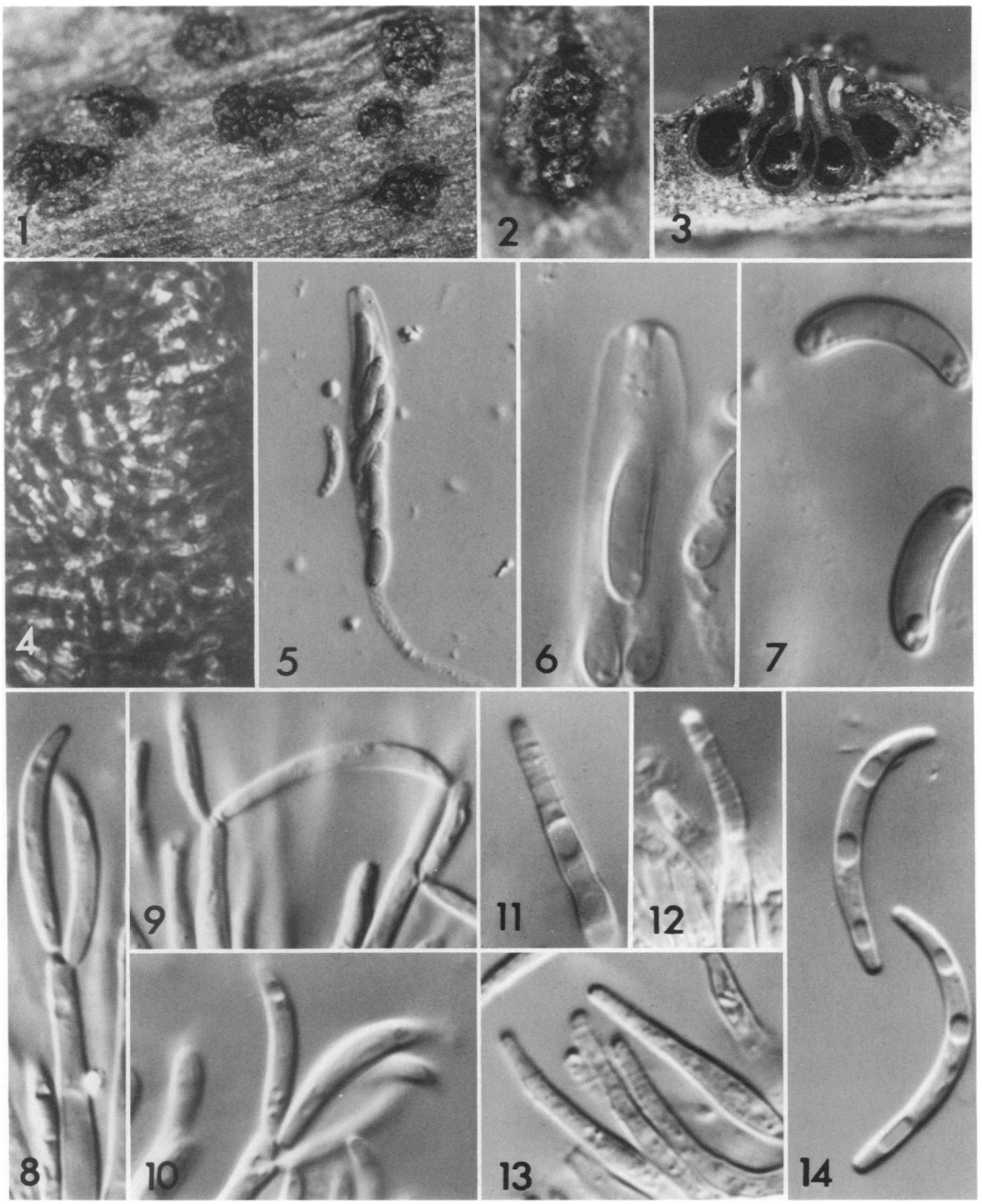
Comments. Comparison of the Illinois and Pennsylvania collections revealed that they represent the same fungus, although the latter collection has slightly smaller ascospores and, possibly, inamyloid apical rings. This apparently is the first time that both percurrently and sympodially proliferating conidiogenous cells have been found in a species of *Eutypella*.

CRYPTOSPHAERIA POPULINA (Pers.: Fr.) Sacc. FIGS. 15–19

Anamorph in culture. Colonies after one month densely felty, dark green to black with white to gray floccose clumps throughout; reverse nearly black. *Conidiomata* often sporodochium-like and up to 1 mm diam, or consisting of aggregations of conidiogenous cells on blackened mycelial crusts, producing yellow- to cream-colored conidial masses in 3 wk. *Conidiogenous cells* arising from pseudoparenchyma or interwoven hyphae, cylindrical, tapering, proliferating sympodially, (14–)20–30(–33.6) μm. Conidia hyaline, single-celled, slightly to strongly curved, with flattened bases, 18.4–32 × (1.2–)1.6 μm.

SPECIMEN FROM WHICH CULTURE WAS STARTED: Glawe, D. A., no. 84-37, ILLS, spring 1984, South Farms, University of Illinois Campus, Champaign Co., Illinois, on *Populus deltoides* Marsh.

Comments. Hinds (**1981**) and Funk (**1981**) recently described various aspects of the anamorph of *C. populina* based on material from western North America, but did not describe conidium ontogeny. Examination of conidiogenous cells of our isolate revealed that conidiogenous cells pro-



FIGS. 1–14. *Eutypella vitis*. 1. Stromata on host, *ca.* ×21. 2. Stroma with three sulcate perithecial ostioles, *ca.* ×50. 3. Vertical section through stroma, *ca.* ×60. 4. Perithecial peridium, ×1000. 5. Ascus, ×1000. 6. Ascus apex. 7. Ascospores. 8–10. Apical regions of sympodially proliferating conidiogenous cells with attached conidia. 11–13. Apical regions of annellated (percurrently proliferating) conidiogenous cells. 14. Conidia. All ×2500 unless otherwise noted.

liferate sympodially. It is possible that percurrent proliferation may also eventually be found in this fungus (see also Glawe and Rogers, **1984**).

DIATRYPE STIGMA (Hoffm.: Fr.) Fr.
FIGS. 20–31

As noted previously (Glawe and Rogers, **1984**), *D. stigma* appears to include a number of disparate elements which probably should be recognized formally as distinct taxa. Unfortunately, numerous taxonomic and nomenclatural problems need to be overcome before this can be done. While teleomorphs of different collections often are similar, isolates have produced a variety of distinctive anamorphs in culture, and Glawe and Rogers (**1984**) divided *D. stigma* into five "collection groups" based, in part, on morphology of the anamorphs. Following are descriptions of two additional anamorphic states produced by fungi fitting the general description of *Diatrype stigma.*

Diatrype stigma, Indiana collection, anamorph in culture. FIGS. 20–23

Colonies after one month white, cottony; reverse yellowish. *Conidiomata* sporodochium-like, up to 1 mm diam, producing yellow conidial masses in 4 wk. *Conidiogenous cells* cylindrical, tapering, arising from pseudoparenchyma or interwoven hyphae, proliferating percurrently, (8–)9.6–12(–20) × 1.6–2.4 μm. *Conidia* hyaline, single-celled, moderately curved, flat-based, 20–28.8(–29.6) μm.

SPECIMEN FROM WHICH CULTURE WAS STARTED: Glawe, D. A., no. 84-28, ILLS, XII.1983, near Elkhart, Elkhart Co., Indiana, on fallen branch of angiospermous tree.

Comments. Conidia of this isolate are significantly longer than those previously found produced by *D. stigma* (see also Glawe and Rogers, **1984**). When the taxonomic status of *D. stigma* is finally settled, it may be preferable to designate this long-conidial fungus as a distinct species.

Diatrype stigma, Swedish collection, anamorph in culture. FIGS. 24–31

Colonies after one month white, cottony; reverse yellowish. *Conidiomata* variable; either black, subconic, pycnidial, up to 1 mm diam, with several spheroidal locules; or white, sporodochium-like, up to 2 mm diam; producing yellow to orange conidial masses in 3–4 wk. *Conidiogenous cells* cylindrical, tapering, arising from pseudoparenchyma or interwoven hyphae, proliferating percurrently or sympodially, sometimes both ways, (9.6–)12–17.6(–20) μm. *Conidia* hyaline, single-celled, slightly to moderately curved, with flattened bases, 11.2–21.6 μm.

SPECIMEN FROM WHICH CULTURE WAS STARTED: Holm, L., ILLS, 25.V.1985, 300 m WNW of the farm Viggeby, Uppland, Dalby, Sweden, on *Rhamnus frangula* L.

Comments. In conidial size, and to some extent shape, this fungus resembles a previously studied strain of *D. stigma* designated "collection group 5" (Glawe and Rogers, **1984**). Conidium ontogeny in that fungus was not unequivocally characterized. The present isolate produces conidiogenous cells which proliferate either sympodially or percurrently, or by both of these modes. This appears to be the first instance where sympodial proliferation has been identified in *D. stigma.*

Conidiomata in this fungus are variable. As reviewed earlier (Glawe, **1983a**, **b**, **1984**; Glawe and Rogers, **1984**), this phenomenon appears rather widespread in Diatrypaceae, and complicates classification of diatrypaceous anamorphs.

An unusual feature of this fungus is the extreme variation in size of conidia. Although the conidia at both extremes of the size range might seem reminiscent of earlier reports of microconidia and macroconidia in Diatrypaceae (*e.g.,* Croxall, **1950**), there is a continuous gradation of conidial sizes in this fungus.

When conidia were streaked on PDA, up to 90% produced lateral, germ tube-like protrusions within 48 h. Although many of the protrusions branched, they did not develop further. Diatrypaceous conidia have not been convincingly demonstrated to germinate, although production of germ tube-like structures appears common (Glawe and Rogers, **1982**, **1984**; Rogers and Glawe, **1983**). It seems possible that under proper conditions diatrypaceous conidia may give rise to mycelia; further studies are warranted.

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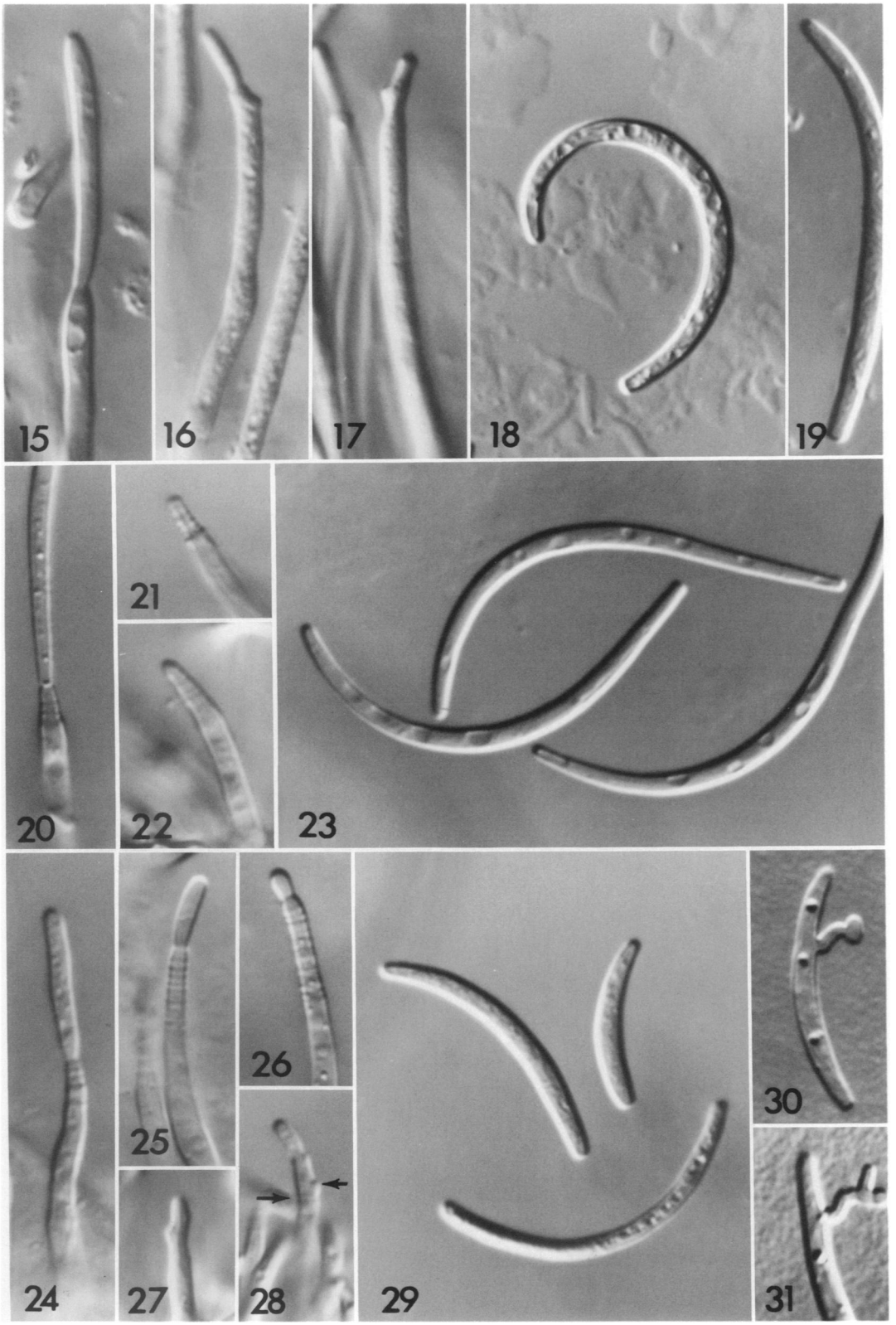

vitis, and Drs. J. L. Crane and J. D. Rogers for reviewing the manuscript.

Key Words: anamorphs, conidium ontogeny, conidium germination.

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FIGS. 15–31. *Cryptosphaeria populina* and *Diatrype stigma.* 15–19. *C. populina.* 15. Apical region of conidiogenous cell with developing conidium. 16, 17. Conidiogenous cells with apices distorted in manner indicative of sympodial proliferation. 18, 19. Conidia. 20–23. Indiana collection of *D. stigma.* 20. Annellated (percurrently proliferating) conidiogenous cell with developing conidium. 21, 22. Annellated conidiogenous cells. 23. Conidia. 24–31. *D. stigma,* Swedish collection. 24–26. Annellated conidiogenous cells with developing conidia. 27. Apical region of conidiogenous cell distorted from sympodial proliferation. 28. Apical region of conidiogenous cell which has undergone both sympodial and percurrent proliferation. Note annellations (left arrow) indicative of percurrent proliferation, and conidial secession scar (right arrow) indicative of sympodial proliferation. 29. Conidia. 30. Conidium with germ tube-like protrusion. 31. Portion of conidium with branched germ tube-like protrusion. All ×2500.